

Notice of Allowability

Application No.

09/833,515

Examiner

Fred Ferris

Applicant(s)

FRISKEN ET AL.

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2 March 2005.
2. ☒ The allowed claim(s) is/are 1-2, 4-18, now renumbered as 1-17.
3. ☒ The drawings filed on 12 April 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 11/01/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

JEAN R. HOMERE
PRIMARY EXAMINER

DETAILED ACTION

1. *Claims 1-18 have been presented for examination based on applicant's amendment filed on 2 March 2005. Applicants have now cancelled claim 3. Claims 1-2 and 4-18 have now been allowed over the prior art of record.*

EXAMINER'S AMENDMENT

2. *An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.*

Authorization for this examiner's amendment was given in a telephone interview with Andrew J. Curtin (applicant's representative) on May 12, 2005. (See attached interview summary)

Amend claim 1 with the following:

*On page 2, line 15, of applicant's amendment filed 2 March 2005, insert the word "**sampled**" between the words "adaptively" and "distance". Line 15 should now read as follows: "adaptively **sampled** distance field representing a result of the first"*

*On page 2, line 19, of applicant's amendment filed 2 March 2005, insert the word "**sampled**" between the words "adaptively" and "distance". Line 19 should now read as follows: "adaptively **sampled** distance field representing a result of the second...."*

Amend claim 17 with the following:

Also, on page 6, line 4, of applicant's amendment filed 2 March 2005, insert the words "**computer implemented**" between the words "A" and "method" in the preamble of claim 17. Line 14 should now read as follows: "A **computer implemented** method for modeling interactions ..."

Response to Arguments

3. Applicant's arguments filed 2 March 2005 have been fully considered.

Regarding applicant's response to IDS issues: The examiner acknowledges applicants IDS submission of 4 November 2004 including the Lin and Gibson references and withdraws the objection.

Regarding applicants response to 35 USC 101 and 112 1st & 2nd rejections: The examiner withdraws the 35 USC 101 and 112 1st & 2nd rejections in view of applicants amendment to the claims and supporting arguments filed 2 March 2005.

Regarding applicants response to 35 USC 103(a) rejection: The examiner withdraws the 35 USC 103(a) rejection of claims 1-2 and 4-18 in view of applicants amendment to the claims and supporting arguments filed 2 March 2005.

Allowable Subject Matter

4. Claims 1-2 and 4-18 have now been allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

Applicants are disclosing a computer-implemented method for modeling interactions between deformable graphical objects using adaptive distance functions to determine proximity between two solids in detecting collision between graphics objects. This has been disclosed in the prior art of record.

While these features are individually disclosed in the prior art, the prior art of record does not meet the conditions as suggested in MPEP section 2132, namely:

*"The identical invention must be shown in as complete detail as is contained in the ... claim." Richardson.v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an **ipsissimis verbis** test, i.e., identity of terminology is not required. **In re Bond**, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990)."*

In particular, the prior art of record does not disclose the specific sequence of steps relating to generating a first and second adaptively sampled distance field having a spatial hierarchy for a first and second deformable graphical object and subsequently determining a potential overlap region during a time step between the first and second adaptively sampled distance field using the spatial hierarchies, as now recited in independent claims 1 and 17, in the context of the claims.

The closest prior art uncovered during examination discloses certain elements of the claimed invention as follows:

"Adaptive Sampling of Implicit Surfaces for Interactive Modeling and Animation", M. Desbrun et al – teaches modeling interactions between deformable graphical objects using adaptive distance functions to determine proximity between two solids, but does

not disclose determining a potential overlap region during a time step between the first and second adaptively sampled distance field using the spatial hierarchies as does the present invention.

U.S. Patent 5,579,455 issued to Green et al – discloses representing models of graphics objects in a spatial hierarchy but does not disclose determining a potential overlap region during a time step between the first and second adaptively sampled distance field as does the present invention.

While the prior art of record discloses certain elements of the claimed invention, it does not explicitly disclose the sequence of steps relating to generating a first and second adaptively sampled distance field having a spatial hierarchy for a first and second deformable graphical object and subsequently determining a potential overlap region during a time step between the first and second adaptively sampled distance field using the spatial hierarchies. (See: specification page 6, line 25 to page 8, line 23, Figs. 3-6) This feature renders the claimed invention non-obvious over the prior art of record.

Claims 2, 4-16 and 18 are allowable as being dependent from independent claims 1 and 17 respectively.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

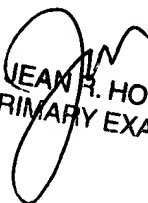
Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 703-305-9670 and whose normal working hours are 8:30am to 5:00pm Monday to Friday. Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 703-305-3900. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached at 703- 308-6647.

The Official Fax Numbers are:

Official (703) 872-9306

Fred Ferris, Patent Examiner
Simulation and Emulation, Art Unit 2128
U.S. Patent and Trademark Office
Crystal Park 2, Room 5D53
Crystal City, Virginia 22202
Phone: (703) 305 - 9670
FAX: (703) 305 - 7240
Fred.Ferris@uspto.gov
May 12, 2005


JEAN R. HOMERE
PRIMARY EXAMINER